

Claims

1. A film with at least one layer (I) consisting of substantially spherulitically crystallised polyamide containing solid, anisotropic, nucleating fillers (A) as dispersed constituents, characterised in that the fillers (A) in layer (I), on number-weighted average of all the dispersed constituents of the fillers (A), exhibit in at least one direction (r1) that can be chosen freely for each dispersed constituent an extension of no more than 10 nm and the individual spherulites in layer (I) exhibit in at least one plane perpendicular to the surface of the film a diameter of, on numerical average, not above 1,000 nm and not below 100 nm and the numerically predominant portion of all the dispersed constituents of the fillers (A) in layer (I) constitutes in each instance the crystal nucleus of a spherulite.
2. Film according to claim 1, characterised in that it contains one or more further polyamide-containing layers.
3. Film according to claim 1, characterised in that one or more layers (I) and/or one or more further polyamide-containing layers contain polyamide which is formed in a proportion amounting to at least 90 percent by weight from  $\epsilon$ -caprolactam.
4. Film according to one of the previous claims, characterised in that the individual spherulites are anisotropic in at least one layer (I).
5. Film according to one of the previous claims, characterised in that the layer (I) forms the outer layer of the film.
6. Film according to one of the previous claims, characterised in that it contains one or more further polymeric layer(s) or contains between two layers a layer consisting of a metal or metal oxide or contains an imprint.

7. A process for producing a film with at least one layer (I) from substantially spherulitically crystallised polyamide containing solid anisotropic nucleating fillers as flat film by

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- (1) melting down the polymers and forming the polymer melt into shape via a flat-film extrusion die
- (2) cooling of the polymer melt and solidification into a solid film on a rotating roll which has a temperature of at most 80°C, for at least 0.1 second
- (3) heating of the film on a rotating roll which has a temperature of at least 90°C, for at least 0.05 second.

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8. Use of a film according to one of the previous claims 1 to 6 for the production of containers on shaping/filling/sealing machines.
9. Use of a film according to one of the previous claims 1 to 6 for the packaging of foodstuffs.

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